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INEQUALITY: MEASUREMENT, TRENDS, IMPACTS AND POLICIES

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Many low- and middle-income countries are achieving good rates of economic growth, while high inequality remains a priority concern. Some countries meanwhile have low growth, high inequality, and pervasive poverty—often linked to their fragility. There is now active debate on how countries should set themselves goals for achieving both absolute poverty reduction and lower inequality. But policy action needs to be better served by analysis and data.

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These concerns motivated the UNU-WIDER Conference on "Inequality: Measurement, trends, impacts, and policies", held in Helsinki, on 5–6 September 2014. The conference featured keynote lectures, invited sessions, contributed parallel sessions and poster-session presentations.[1] Over seventy papers were delivered, of which six now appear in this special issue of *The Review of Income and Wealth*. These papers have been subject to peer review, and the editor of *The Review of Income and Wealth*, Professor Conchita D'Ambrosio, was responsible for the overall editorial process.

There has been much debate over inequality at the global level. Accordingly, this special issue begins with the paper by Nino-Zarazua, Roope and Tarp, entitled "Global Inequality: Relatively Lower, Absolutely Higher". It sets the stage by providing updated and refined estimates of inequality in the world. The authors use data from the UNU-WIDER World Income Inequality Data Set (WIID)

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[1]A selection of papers, as well as videos of the sessions at the UNU-WIDER conference on inequality are available at: https://www.wider.unu.edu/event/inequality-measurement-trends-impacts-and-policies.

which is a reliable source of country-level income inequality indices (Jenkins, 2015). The authors contribute to the literature in three main ways. First, they provide up-to-date estimates covering the period from 1975 until 2010, whereas most earlier estimates use data that ends around the mid-1990s. Second, they provide findings for both traditional, 'relative' inequality, measures—according to which inequality is unaffected by changes where the incomes for all households increase by the same percent—and absolute measures (which account for absolute income changes) as well as centrist ones, which combine the elements of relative and absolute measures. Finally, they conduct counterfactual experiments to examine whether increasing absolute income disparities could have been avoided if all countries were characterized by the Nordic region's low levels of inequality.

Nino-Zarazua *et al*. find that income inequality in the world has decreased steadily over the past three decades when inequality is measured using conventional relative measures. A decomposition analysis shows that the reduction is due to a lowering of between-country inequality, whereas within-country inequality shows considerable heterogeneity. However, absolute inequality and even their centrist measure, the Krtscha index, have risen. This latter finding motivated the counterfactual analysis where countries were assumed to have Nordic levels of inequality in 2010. Even in this exercise, absolute inequality indices, measured either by the standard deviation or the absolute Gini, depict an increase in global inequality from 1975 to 2010, whereas relative inequality declines significantly. The findings are particularly useful as they starkly illustrate how different views on measuring inequality can lead to completely opposite conclusions regarding inequality developments. Perhaps some of the tensions between the views of non-professionals and experts on world inequality can be explained by these differences in approaches.

The second article in the collection, by Davies, Lluberas and Shorrocks titled "Estimating the level and distribution of wealth, 2000–2014", also provides global inequality estimates, now for wealth. Estimating the Gini for wealth is a complex exercise, involving three main steps. In the first, the authors need to estimate the mean level of wealth in each country. If household balance-sheet data is not available, the authors use regression models to impute the mean level of wealth for the countries with missing direct information on wealth holdings. The second step is to estimate the wealth distribution for individuals within a country. For some countries, direct distributional information exists, while for others, wealth distribution is imputed based on income inequality, again using measures from the WIID. As expected, for countries where data on both income and wealth distribution exist, wealth is more unevenly distributed. The third step is to correct for the underestimation of the wealth holdings of the very rich that typically occurs in survey-based wealth analysis; this is done by combining information from other sources, most notably from *Forbes Magazine*.

The total for world wealth by household stood at 250 trillion USD in 2014 (measured using market exchange rates). In the beginning of the analysis period, the corresponding number was above 100 trillion. So the increase has been quite dramatic. The share of global wealth of people residing in Europe or North America is approximately 70 percent. The top group of wealth holders (having wealth above 1 million USD) comprises just 0.7 percent of the world's adult

population whereas its household wealth amounts to 45 percent of the global total. The Gini for the global wealth distribution is 92.2 percent, way above the Gini estimated for world income inequality. The authors close with a stimulating discussion on whether global wealth inequality will rise in the future. They conclude that while within-country wealth inequality may rise, as predicted by Piketty, between-country wealth inequality can also decline, if poorer countries continue to catch up with the currently high-income countries; this implies that total world wealth inequality forecasts remain ambiguous.

The remaining papers in this issue focus on advances in the measurement of inequality and applications using data from individual countries. The third article, "Cross-Sectional versus Panel Income Approaches: Analyzing Income Distribution Changes for the Case of Mexico," by Duval-Hernandez, Fields and Jakubson contrasts two different ways of examining changes in inequality. In the first, in the most commonly used approach, repeated cross sections are used to examine inequality developments. In such an approach, the current rich are not the same persons as the rich in previous data points. Therefore, the approach can be characterized as anonymous. However, one can also use longitudinal, non-anonymous data, and often these data are used in a very different way: there, analysts have examined whether those who were initially poor have experienced larger-than-average income gains; i.e. whether there has been convergence in income levels.

The authors first show, conceptually, that it is quite likely to observe a situation where convergence takes place, and nevertheless income inequality, when measured using the anonymous approach, increases. They then use Mexican labor-force survey data and apply the two different approaches. The results reveal that irrespective of whether conventionally measured earnings disparity rises or not, earnings have always, on average, exhibited convergence. The reason is that few of the initially poor have experienced large income gains, which affects the regression parameter measuring convergence, whereas most have faced very small changes in their incomes. Their article therefore makes it clear that it matters how inequality is measured, a theme throughout this special issue.

Use of panel data continues with the fourth article "Welfare Dynamics Measurement: Two Definitions of a Vulnerability Line and Their Empirical Application," by Dang and Lanjouw. Analysts have increasingly become interested in the specific shape of the income distribution, on top of summary measures of inequality (such as the Gini). The mass of people currently just above the poverty line, who are also vulnerable to imminently falling into poverty, is often of special interest: at the same time when absolute poverty has fallen in the world, there is a threat that the number of vulnerable people has increased. Dang and Lanjouw offer two alternative ways of defining a "vulnerability line." In the first, they identify individuals that are not vulnerable and then define the vulnerability line as a lower bound of income for this group. This gives rise to their "Insecurity Index." In the second approach they consider the population that is not poor but who have a heightened possibility to experience poverty in the future. The vulnerability line is then set to the upper bound of the income level of this group.

The authors illustrate these approaches using true panel data from Vietnam and the USA, and synthetic panel data from India. The results suggest that the

reductions in poverty in Vietnam and India have been matched with an almost similar increase in the middle class—people above the vulnerability line—so the share of the vulnerable part of the population has remained almost constant at 35–50 percent of the total number of people. It is interesting that in the same period (2004–2008/9), the trend in the USA has been markedly different: an increase in the number of the poor (measured using a much higher poverty line in absolute terms), together with a reduction in the size of the middle class and an increase in the extent of the vulnerable group. There also seems to be less income mobility in the USA than in India or Vietnam.

The middle class is the focus in the next article, "When the Centre Cannot Hold: Patterns of Polarization in Nigeria," by Clementi, Dabalen, Molini and Schettino. The paper addresses a key feature of income developments in many countries, the risk of polarization. This happens if the share of people having income levels close to the median income is reduced and at the same time the share of households at the bottom and the top of income levels increases. The phenomenon can have undesirable consequences, since the middle class has often been a source of stability for economic and political developments whereas the extremes of the income distribution can become alienated from each other. Researchers have developed measures of polarization, and these are used by the authors of this study as well. In addition, they demonstrate how non-parametric descriptive analysis is helpful in conveying information about the developments of the whole income distribution.

The authors of this study construct two comparable income distribution surveys for Nigeria, for 2003 and 2013. The results reveal a sharp increase in polarization in the country and some interesting regional disparities: the Southern part of the country has contributed to polarization in the upper tail of the distribution whereas the North has experienced polarization in the lower part of income distribution. Clearly, for understanding the picture of poverty and inequality in Africa, Nigeria is a key country, and the analysis the authors provide makes a good case for replication analysis elsewhere in Africa and other developing countries.

The final paper in this issue "Measuring Inequality by Asset Indices: A General Approach with Application to South Africa," by Wittenberg and Leibbrandt, focuses on the properties of an often-used measure of inequality when direct income or expenditure data are not available, the so-called asset index. Such an index is derived from the ownership of certain assets (such as a car, a mobile phone or a TV set) to generate a rough measure of material well-being. Sometimes these data are more regularly available, from e.g. Demographic and Health Surveys, than from fully-fledged income or expenditure surveys. While earlier studies have assessed the predictive properties of asset indices of "true" income inequality, the focus in the present paper is different; it is on the internal consistency of asset indices.

The authors point out that the categorical nature of asset ownership data (capturing whether the households own a certain asset or not) implies that the measure is also ultimately of discrete nature. Perhaps more importantly, sometimes some assets get negative weights in an overall asset index, composed for example by the principal component analysis. A practical example is ownership of cattle, which tends to be more important to poorer households than richer

ones. However, we know from external data that cattle ownership is an important means for storing wealth among rural households in developing countries, and therefore having more cattle cannot really be a negative phenomenon. Wittenberg and Leibbrandt also calculate asset inequality indices for post-Apartheid South Africa and highlight a sizable reduction in asset inequality. While this may suggest that conventional measures of inequality (which have a rising trend over the same period) need to be complemented by additional measures, it may also suggest that asset inequality analysis has drawbacks when compared with, other, perhaps broader measures. The authors conclude that while asset indices remain useful, their users should ensure that they understand well how such indices are compiled.

Writing in the late 1970s Henry Aaron famously noted that studying inequality was like "watching the grass grow," for there had been little change in the level of US inequality since the immediate years after World War Two (Aaron, 1978, p. 17). This was just before inequality started to change rapidly, both between and within countries, from the 1980s onwards. The drivers of these changes are now the subject of intense debate, not least the relative impacts of globalization and technological change. Readers will no doubt agree that with new data, new techniques and new policy issues, there has hardly been a more exciting time to study inequality in all its many dimensions. We hope that this Special Issue will stimulate further advances in the study of inequality, a topic which is now of the highest important to development policy and social policy more broadly.

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